

What is claimed:

1 1. A system for scanning an object comprising:  
 2 a drive shaft having a proximal portion and a longitudinal axis;  
 3 a motor including a motor shaft having a rotational axis, the motor  
 4 serving to rotate the motor shaft about the rotational axis;  
 5 a flexible joint coupling the drive shaft to the motor shaft by the  
 6 proximal portion of the drive shaft, the flexible joint having a range of  
 7 motion which allows the longitudinal axis of the drive shaft to move relative  
 8 to the rotational axis of the motor shaft; and  
 9 an object attached to the drive shaft which is movable along the  
 10 longitudinal axis of the drive shaft in response to the drive shaft being  
 11 rotated by the motor.

1 2. A system according to claim 1 wherein the flexible joint has a range  
 2 of motion which allows the longitudinal axis of the drive shaft to move at  
 3 least about 1 degree relative to the rotational axis of the motor shaft.

1 3. A system according to claim 1 wherein the flexible joint has a range  
 2 of motion which allows the longitudinal axis of the drive shaft to move at  
 3 least about 5 degrees relative to the rotational axis of the motor shaft.

1 4. A system according to claim 1 wherein the flexible joint has a range  
 2 of motion which allows the longitudinal axis of the drive shaft to move at  
 3 least about 10 degrees relative to the rotational axis of the motor shaft.

1 5. A system according to claim 1 wherein the drive shaft rotates at a  
 2 substantially constant angular velocity during a revolution of the motor  
 3 shaft despite drag of the drive shaft varying across a rotation of the drive  
 4 shaft.

1 6. A system according to claim 1 wherein the flexible joint includes a  
 2 first hub for attaching the motor shaft to the joint and a second hub for

- 3 attaching the drive shaft to the flexible joint, the first and second hubs  
4 being movable relative to each other.

1 7. A system according to claim 6 wherein the first hub has a first range  
2 of angular motion within the flexible joint and the second hub has a  
3 second, different range of angular motion within the flexible joint.

1 8. A system according to claim 7 wherein first and second ranges of  
2 angular motion are in planes orthogonal to each other.

1 9. A system according to claim 1 wherein the flexible joint includes a  
2 first hub for attaching the motor shaft to the joint and a second hub for  
3 attaching the drive shaft to the flexible joint, the first and second hubs each  
4 including hub pins by which the hubs are attached to the flexible joint and  
5 about which the hubs have a range of angular motion.

1 10. A system according to claim 9 wherein the hub pins are held under  
2 compression within journals in the flexible joint.

1 11. A system according to claim 1 wherein the flexible joint is  
2 longitudinally stiff.

1 12. A system for scanning an object adjacent a rotatable drum  
2 comprising:  
3 a drive shaft having a proximal portion and a longitudinal axis;  
4 a motor including a motor shaft having a rotational axis, the motor  
5 serving to rotate the motor shaft about the rotational axis;  
6 a flexible joint coupling the drive shaft to the motor shaft by the  
7 proximal portion of the drive shaft, the flexible joint having a range of  
8 motion which allows the longitudinal axis of the drive shaft to move relative  
9 to the rotational axis of the motor shaft;  
10 an object attached to the drive shaft which is movable along the  
11 longitudinal axis of the drive shaft in response to the drive shaft being

12 rotated by the motor; and  
13 a drum positioned adjacent the object, the drum being rotatable  
14 about a rotational axis that is approximately parallel to the rotational axis of  
15 the motor shaft.

1 13. A system according to claim 12 wherein the flexible joint has a  
2 range of motion which allows the longitudinal axis of the drive shaft to  
3 move at least about 1 degree relative to the rotational axis of the motor  
4 shaft.

1 14. A system according to claim 12 wherein the flexible joint has a  
2 range of motion which allows the longitudinal axis of the drive shaft to  
3 move at least about 5 degrees relative to the rotational axis of the motor  
4 shaft.

1 15. A system according to claim 12 wherein the flexible joint has a  
2 range of motion which allows the longitudinal axis of the drive shaft to  
3 move at least about 10 degrees relative to the rotational axis of the motor  
4 shaft.

1 16. A system according to claim 12 wherein the drive shaft rotates at a  
2 substantially constant angular velocity during a revolution of the motor  
3 shaft despite drag of the drive shaft varying across a rotation of the drive  
4 shaft.

1 17. A system according to claim 12 wherein the flexible joint includes a  
2 first hub for attaching the motor shaft to the joint and a second hub for  
3 attaching the drive shaft to the flexible joint, the first and second hubs  
4 being movable relative to each other.

1 18. A system according to claim 17 wherein the first hub has a first  
2 range of angular motion within the flexible joint and the second hub has a  
3 second, different range of angular motion within the flexible joint.

- 1 19. A system according to claim 18 wherein first and second ranges of  
2 angular motion are in planes orthogonal to each other.
- 1 20. A system according to claim 12 wherein the flexible joint includes a  
2 first hub for attaching the motor shaft to the joint and a second hub for  
3 attaching the drive shaft to the flexible joint, the first and second hubs each  
4 including hub pins by which the hubs are attached to the flexible joint and  
5 about which the hubs have a range of angular motion.
- 1 21. A system according to claim 20 wherein the hub pins are held under  
2 compression within journals in the flexible joint.
- 1 22. A system according to claim 12 wherein the flexible joint is  
2 longitudinally stiff.
- 1 23. A system for scanning for reading storage layer radiation screens  
2 comprising:  
3 a drive shaft having a proximal portion and a longitudinal axis;  
4 a motor including a motor shaft having a rotational axis, the motor  
5 serving to rotate the motor shaft about the rotational axis;  
6 a flexible joint coupling the drive shaft to the motor shaft by the  
7 proximal portion of the drive shaft, the flexible joint having a range of  
8 motion which allows the longitudinal axis of the drive shaft to move relative  
9 to the rotational axis of the motor shaft;  
10 an image acquisition optical system attached to the drive shaft  
11 which is movable along the longitudinal axis of the drive shaft in response  
12 to the drive shaft being rotated by the motor; and  
13 a drum positioned adjacent the image acquisition optical system, the  
14 drum being capable of holding one or more storage layer radiation screens  
15 and rotatable about a rotational axis that is approximately parallel to the  
16 rotational axis of the motor shaft.

1 24. A system according to claim 23 wherein the flexible joint has a  
2 range of motion which allows the longitudinal axis of the drive shaft to  
3 move at least about 1 degree relative to the rotational axis of the motor  
4 shaft.

1 25. A system according to claim 23 wherein the flexible joint has a  
2 range of motion which allows the longitudinal axis of the drive shaft to  
3 move at least about 5 degrees relative to the rotational axis of the motor  
4 shaft.

1 26. A system according to claim 23 wherein the flexible joint has a  
2 range of motion which allows the longitudinal axis of the drive shaft to  
3 move at least about 10 degrees relative to the rotational axis of the motor  
4 shaft.

1 27. A system according to claim 23 wherein the drive shaft rotates at a  
2 substantially constant angular velocity during a revolution of the motor  
3 shaft despite drag of the drive shaft varying across a rotation of the drive  
4 shaft.

1 28. A system according to claim 23 wherein the flexible joint includes a  
2 first hub for attaching the motor shaft to the joint and a second hub for  
3 attaching the drive shaft to the flexible joint, the first and second hubs  
4 being movable relative to each other.

1 29. A system according to claim 28 wherein the first hub has a first  
2 range of angular motion within the flexible joint and the second hub has a  
3 second, different range of angular motion within the flexible joint.

1 30. A system according to claim 29 wherein first and second ranges of  
2 angular motion are in planes orthogonal to each other.

1 31. A system according to claim 23 wherein the flexible joint includes a

2 first hub for attaching the motor shaft to the joint and a second hub for  
3 attaching the drive shaft to the flexible joint, the first and second hubs each  
4 including hub pins by which the hubs are attached to the flexible joint and  
5 about which the hubs have a range of angular motion.

1 32. A system according to claim 31 wherein the hub pins are held under  
2 compression within journals in the flexible joint.

1 33. A system according to claim 23 wherein the flexible joint is  
2 longitudinally stiff.